



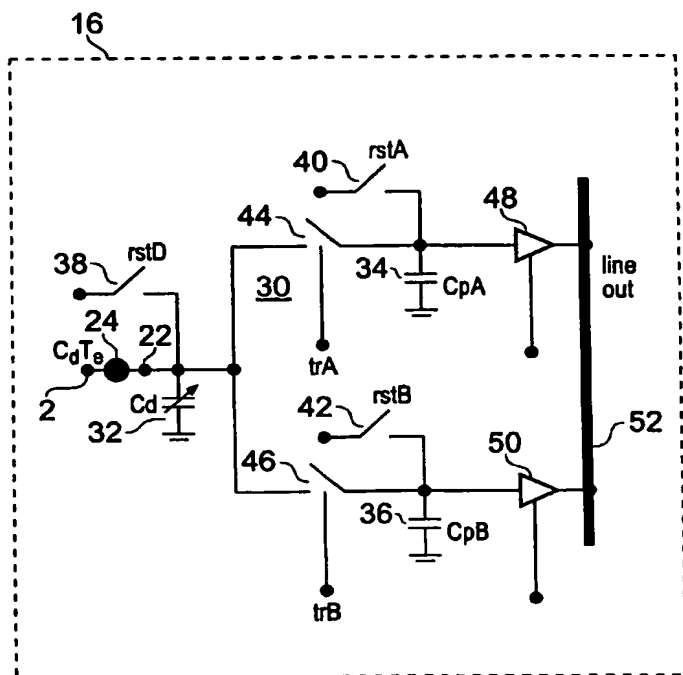
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*[Continued on next page]*

- (54) Title: IONISING RADIATION DETECTOR**



- (57) Abstract:** An assembly (13) for monitoring ionising radiation comprises a detector substrate (2) for generating electronic charge responsive to incident ionising radiation, the detector substrate (2) having an array of ionising radiation sense volumes (12) formed in it. A circuit substrate (14) supporting an array of read-out circuits (16) corresponding to the array of sense volumes is mechanically and electrically coupled to the detector substrate (14). Each of the read-out circuits (16) is switchable between first and second charge integration modes for receiving charge from a corresponding sense volume. A charge integration circuit (30) is configured in the first charge integration mode to integrate charge corresponding to sensing of a single ionising radiation detection event in a corresponding sense volume and in the second charge integrating mode to integrate charge corresponding to sensing a plurality of ionising radiation detection events in the corresponding sense volume. In another embodiment the read-out circuitry includes photon-counting circuitry (140).

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